hypnotic aural suggestion; the visional auto-suggestion is also well known among other races, for example, the *latah* of the Malay peoples. Persons who are past thirty or forty years of age, and chiefly women, are subject to this second form of arctic hysteria.

The chapter on family life is of especial importance; a careful account is given of relationship terms and the ideas of kinship; the system is essentially classificatory, with some suggestive modifications, the information here given being more detailed than is usually the case with even professed ethnologists. A review of the facts pertaining to marriages shows that, just as in the period of courtship, there are two distinct tendencies, one towards loose sexual relations, and the other towards idealising constancy and mutual faithfulness. So, also, in marriage, there is a striving towards exogamy and an inclination towards consanguineous marriages, which, it seems, were common in former times. Both the Yakut (who in general practise very strict exogamy) and the Yukaghir observe that children born from consanguineous marriages are generally unhealthy. Dr. Jochelson has not only given us a detailed account of a vanishing people, but he alludes to problems that will interest the student of comparative ethnology.

A. C. HADDON.

INTERNATIONAL CONGRESS OF ANATOMISTS AT BRUSSELS.

THE second quinquennial Congress of Anatomists was held at Brussels on August 7–11. The societies participating in it were the Anatomische Gesellschaft of Germany, the Association des Anatomistes of France, the American Association of Anatomists, the Anatomical Society of Great Britain and Ireland, and the Unione Zoologica of Italy; there was an attendance of about one hundred members. Among the representatives from the various countries and associations were Waldeyer and Von Bardeleben, Nicolas and Laguesse, Minot and Piersol, Romiti, and Arthur Thomson, Paterson and Dixon.

Meetings for the reading and discussion of papers were held in the forenoons in the physics classroom of the university, and demonstrations were given in the afternoon in the anatomical department in the Parc Leopold. About fifty communications were read, of which the majority dealt with embryological or histological subjects; many of the papers were of great interest and importance.

Among the papers presented by members from Germany, Poll gave an important communication dealing with spermatogeneris and oogenesis in hybrids. Using material derived mainly from hybrid pheasants, he demonstrated that spermatogenesis in them never went beyond the primary stage, or to the production of fully formed sperms. Braus gave a communication and demonstration upon the distribution of motor nerve fibres to the muscle segments in the lateral fin of the skate, and showed that each muscle segment in it received an innervation from a number of spinal nerves, and he also demonstrated the contraction of from 5–8 muscle segments upon stimulation of a single spinal nerve.

Neumayer showed a beautiful series of models illustrating the development of the skeleton of the head in Bdellostoma St. L., and Fetzer showed a model and sections of a very early human embryo closely resembling the ovum of Peters. In it the fixation and the histological structure of the trophoblast were particularly well seen.

Lenhossek gave a communication on the nerve-cells of the ciliary and otic ganglia in man, and showed some very fine specimens of them. Several communications from members of the German and American societies dealt with the development of the blood cells, Maximow giving a communication upon the development in Selachians and Amphibians, Frau Wera Dantschakoff that in Reptiles, and Minot upon the nomenclature and morphology of blood cells in general. He appealed for a more rational and scientific terminology than at present exists, and for the abolition of terms such as "normoblasts."

The papers from French anatomists included one from Lams, accompanied by a demonstration of beautiful specimens on the fertilisation and early changes in the ovum of the guinea-pig, which gave rise to an interesting discussion upon the *rôle* of the tail segment of the entering spermatozoon, in which Brachet and Van der Stricht took part. Dubreuil showed the development of the lamellæ in the upper end of the femur, and the relation which they present to the entering vessels. Several communications from members of this society dealt with the presence and character of Mitochondria in various tissue cells.

Huntingdon and McClure, of the American Society, dealt with the development of the lymphatic system, and demonstrated a loosening of the intima of the early veins, by which lymph channels could take origin within the lumen, outside the intima.

Lee gave a communication upon the implantation of the ovum in various North American rodents, and Huber demonstrated some fine corrosion preparations, illustrating the morphology of the renal tubules and vessels in vertebrates.

Of the British and Irish Society, Hill (London) demonstrated, by a fine series of photographs, the growth and maturation of the marsupial ovum as illustrated by Dasyurus. Berry (Melbourne) gave a communication upon Tasmanian crania; Evatt (Winnipeg) advanced a new view of the homologies of the urethra and vagina in the sexes; Arthur Thomson and Whitnall (Oxford) dealt with the anatomy of the angle of the iris and a ligament acting as a check to the action of the levator palpebræ superioris; and Waterston (London) gave a communication upon the shape of the human stomach and the action of formalin. A paper from Cameron (London) was read, upon the development of the anterior commissure and adjacent parts.

Most of these papers will probably be published at an early date, and hence no description of them need be given here.

On the last day of the congress an important step was taken in the appointment of an international committee to consider the question of a uniform embryological nomenclature, on the model of the Basel anatomical nomenclature for general anatomy. A committee of representatives from each country represented at the congress was appointed, with power to co-opt additional members, and with Prof. Mall, of Baltimore, as general secretary.

The members of the congress were entertained at a municipal reception in the magnificent Hotel de Ville, and they also appreciated greatly a demonstration given by Dollo of the great collection of fossil Iguanodons in the Natural History Museum.

BRITISH MARINE ZOOLOGY.

THE Bureau of British Marine Zoology has been established under the directorship of Mr. S. Pace, late director of the Millport Marine Biological Station. The objects of the bureau, we learn from the prospectus before us, are twofold:—(1) to compile a bibliography of all works dealing with the biology of the European seas, and (2) to establish a marine biological station of a movable character with adequate staff, but relatively simple and inexpensive equipment, to work at faunistic problems at one or two points on the coast, with no reference to any question of their possible economic importance.

It is intended that the bibliography should be issued in a large number of parts each year, and that the issue of each part should follow the papers referred to in it at the shortest possible interval. From the specimen pages of such an issue submitted to us, we gather that the papers are classified both under the author's name and according to subject-matter, and they are accompanied by very brief synopses of their contents, the brevity of which is increased by the use of the numerous abbreviations employed. Such a bibliography should be of very considerable value to workers at marine biology. Whilst, of course, it cannot compare with such periodicals as the *Zoological Record* or the *Zoologisches Jahresbericht*, it will anticipate the appearance of these by many months.

With respect, however, to the second project for which the bureau has been established, viz. to carry on an exhaustive faunistic survey of the marine life at one or more points on our coasts, a point of cardinal importance is at once raised. We have at present about half a dozen "stations" for the study of marine biology. There is hardly one of these which receives anything like adequate

support. The largest of them, the Marine Biological Association's station at Plymouth, is faced with a serious deficit, and is forced to contemplate the curtailment of its operations. The amount of sympathy and support which the cause of "pure" science can evoke in Great Britain is, unfortunately, very small. We should therefore regret very much to see another "station" started, especially as the staff at Plymouth have carried out just such a faunistic survey of the coast near Plymouth as Mr. Pace desiderates.

Mr. Pace believes that the intrusion of the economic motive "must arrest, if it does not entirely hinder, scientific research." If the zoological schools of this country would concentrate on supporting one station, economic work might be dispensed with, and we might have a purely scientific biological station like Wood's Hole in America. But this goal is far off. Each new zoological school seems to desire its own station, and since the "stations" must look outside the ranks of professional zoologists for support, this support must be attracted by the promise either to devote part of the energies of the staff to economic problems, as the council of the Plymouth station have done, or to undertake the dissemination of popular knowledge of natural history, as the council of the Millport station has done. After all, the foundations of our knowledge of natural history were laid by the splendid amateurs of the last generation, of whom the founder of the Millport station was one. A great service to science would be accomplished if we could resuscitate this race.

We agree with Mr. Pace that it would be an admirable thing if marine biological research in this country could be organised; but it seems to us that the first step in this direction would be the whole-hearted support of the Marine Biological Association, which was founded for this purpose, and this association, if adequately financed, could provide a steamer which would serve the purpose of faunistic investigation better than the movable laboratory which Mr. Pace desires. Mr. Pace's scheme is an admirable one for starting investigation in a new country—it was that adopted by Canada for seven years; but in Canada it has been given up, and a permanent station on the model of Plymouth has been substituted for it.

E. W. MACBRIDE.

INHERITANCE IN THE DOMESTIC FOWL.[1]

IN the conditions under which they work, students of genetics enjoy exceptional advantages in America, where the munificence of private benefactors or the enterprise of various States has already led to the creation of several institutions specially endowed for this line of research; and from time to time the record of their work may appear in the form of a sumptuous publication issued by the Carnegie Institution of Washington. Dr. Davenport is already known for his investigations on heredity in poultry, and the present volume forms a continuation of the account of his researches to which a volume in the same series was devoted in 1906.

The memoir deals mainly with characters which, at any rate in some cases, are remarkable for the considerable grading that is found among the offspring of the various crosses. To this category belong the feathering on the shanks and the extra toe, both normally found in certain breeds of fowl. It has been recognised for some years that the inheritance of polydactylism in poultry often exhibits irregularities as compared with that of other characters where the mode of transmission is of a simple Mendelian nature. There are cases where the polydactyl condition may behave as a dominant to the normal in the ordinary way, but there are also cases where a bird with normal feet, bred from a polydactyl strain, may transmit the polydactyl condition to some of its offspring, *i.e.* where the individual does not exhibit the extra toe, though breeding tests show that the factor or factors for it must be carried by some of its germ-cells. The dominance of such a character as exhibited by the zygote may range from completeness down to *nil*. Nevertheless, some of the F_2 birds are without the extra toe, and are incapable of transmitting it; in other words, some of the germ-cells of the F_1 birds are completely free from the element, whatever it may be, to which the extra toe is due.

Hitherto it has not been possible to express this case more precisely, and though Davenport's results confirm our previous knowledge, he has been unable to construct a definite factorial scheme to cover the facts. He concludes that in polydactylism, as also in other cases, such as rumplessness and the feathered shank, dominance varies quantitatively, and that the degree of dominance is inheritable; but, of course, this does not help us in understanding what these varying degrees of dominance are due to. It may be that further work will make this more clear, or it may be that the heredity of these meristic characters differs from that of other characters in some way that has not yet been perceived. For the present, we can only confess to ignorance.

An account is given of crosses between either Houdan or Polish and single combs, and an attempt is made to explain the results on the supposition that two comb factors are concerned. Here again the irregularities between normal expectation and observation are attributed to quantitative variation in the degree of dominance. Experiments with fowls' combs have hitherto given such well-defined results that it seems not impossible that the complexities encountered by the author are due to the fact that he is dealing with more than two comb factors in this particular cross. The author's statement that many forms of comb appear in the F_2 generation is probably not without significance.

A chapter is devoted to the inheritance of the high and widely open type of nostril found in the low-combed Polish and Houdan breeds. From an elaborate system of grading his data, the author concludes that the widely open condition is dominant to the more usual narrow form of nostril, and that the intermediate grades are the result of imperfection of dominance, though here again no suggestion is given of the cause of this imperfection. There is little doubt that this character of wide nostril is largely dependent upon the size of the comb, and we cannot help feeling that the treatment of the question would have been more satisfactory had the nostril and comb characters been worked out in relation to one another.

The inheritance of crest Davenport considers a somewhat more complex case than it was originally thought to be, and he suggests that its nature depends certainly upon two, and possibly upon more than two, factors.

A short chapter is devoted to the results of breeding from a wingless cock. When crossed with normal birds the offspring were all normal, and some of these bred together again produced nothing but normals. Davenport suggests that winglessness is dominant to the normal condition, that the wingless cock was heterozygous, and that dominance in subsequent generations was imperfect. It may be pointed out that the facts accord equally well with the view that the abnormality was a purely somatic one, and was not reflected in the germ-cells of this wingless bird.

A number of experiments were made on plumage colour, largely with the view of elucidating the nature of buff and of black, and the author has seen his way to express his results in simple terms. Perhaps one of the most interesting results is the appearance of a definite proportion of white birds in the F_2 generation from a cross between black and buff Cochins. The author is, however, less happy in his discussion of the inheritance of blue, and his attempt to make the colour-inhibiting factor of the white Leghorn partly responsible has led to an account that is inconsistent with itself.

The memoir concludes with a general discussion on topics connected with heredity.

[1] "Inheritance of Characteristics in Domestic Fowl." By C. B. Davenport. Publication No. 121. Pp. 100; 12 plates. (Washington: Carnegie Institution, 1909.)

AGRICULTURE AND ALLIED SCIENCES.[1]

THE number of agricultural and horticultural publications has reached somewhat alarming proportions during the last few years, but there is always room for really good works; and in this category must be placed the Journal of the South-eastern Agricultural College, Wye, Kent, No. 18 of which is under notice. This publication

[1] "The Journal of the South-eastern Agricultural College, Wye, Kent, No. 18. Pp. 443. (London and Ashford: Headley Brcs., 1909.) Price 6s.; Residents in Kent and Surrey, 3s.